

July 24, 2001
JP2002118156A

INT-CL (IPC): G01R031/26; G01R031/28 ; G11C029/00 ;
H01L021/66 ;
H01L027/10

ABSTRACTED-PUB-NO: DE 10036177A

BASIC-ABSTRACT: NOVELTY - A device for testing semiconductor devices (3) in order to detect faulty devices, has a tunable light source (4) which is capable of projecting light of a given wavelength (λ) and intensity (I) on to the semiconductor device (3) for a given length of time (T), so that with irradiation of the semiconductor device with this light, electrons can cross over from the valence band with a small gap, into the conduction band .

USE - Testing of semiconductor devices by measuring the gap between the valence band and the conduction band, with low values compared with the values obtained with flaw-free semiconductor devices.

ADVANTAGE - Requires no waiting time for temperature changes to take effect and in general long waiting times are avoided. In addition, no cost-intensive changes of equipment are required during testing of different semiconductor devices.

DESCRIPTION OF DRAWING(S) - A schematic representation of the device is given.

Wafer probe 1

Details Text Image HTML FULL

| | Document ID | Kind Codes | Source | Issue Date | Pages | |
|---|---------------|------------|---------|------------|-------|--------|
| 1 | JP 2002118156 | | JPO | 20020419 | 5 | APPAP |
| 2 | NB890887 | | IBM TDB | 19890801 | 1 | Biassi |
| 3 | NN87024105 | | IBM TDB | 19870201 | 2 | Non-I |
| 4 | DE 10036177 A | | DERWENT | 20020214 | 5 | Equip |

Details Text Image HTML Full

Patent Application Publication Feb. 21, 2002

US 2002/0021141 A1

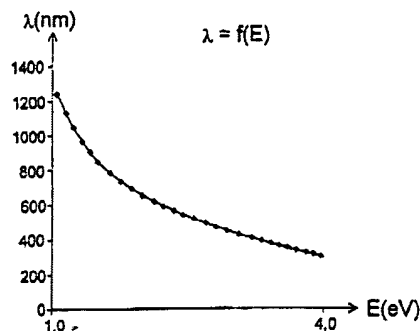


Fig. 1

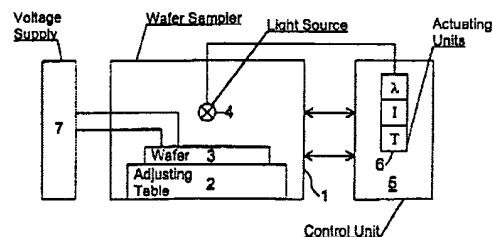


Fig. 2

Details Text Image HTML Full

DERWENT-WEEK: 200247

COPYRIGHT 1999 DERWENT INFORMATION LTD

TITLE: Equipment for quality testing of semiconductor devices, measures gap between valence band and conduction band of semiconductor devices

----- KWIC -----

Basic Abstract Text - ABTX (1):

NOVELTY - A device for testing semiconductor devices (3) in order to detect faulty devices, has a tunable light source (4) which is capable of projecting light of a given wavelength (λ) and intensity (I) on to the semiconductor device (3) for a given length of time (T), so that with irradiation of the semiconductor device with this light, electrons can cross over from the valence band with a small gap, into the conduction band.

Basic Abstract Text - ABTX (2):

USE - Testing of semiconductor devices by measuring the gap between the valence band and the conduction band, with low values compared with the values obtained with flaw-free semiconductor devices.

Details Text Image HTML KWIC

| | Document ID | Kind Codes | Source | Issue Date | Pages | |
|---|---------------|------------|---------|------------|-------|-------|
| 1 | JP 2002118156 | | JPO | 20020419 | 5 | APPAR |
| 2 | NB890887 | | IBM TDB | 19890801 | 1 | Biasi |
| 3 | NN87024105 | | IBM TDB | 19870201 | 2 | Non-I |
| 4 | DE 10036177 A | | DERWENT | 20020214 | 5 | Equip |

Details Text Image HTML



US 2002021141 A1

(19) United States

(12) Patent Application Publication (20) Pub. No.: US 2002/0021141 A1
Hartmann (43) Pub. Date: Feb. 21, 2002

(54) APPARATUS FOR TESTING SEMICONDUCTOR DEVICES

(52) U.S. Cl. 324/765

(76) Inventor: Udo Hartmann, München (DE)

(57) ABSTRACT

Correspondence Address:
LENNER AND GREENBERG, P.A.
Post Office Box 2400
Hollywood, FL 33022-3400 (US)

(21) Appl. No.: 09/913,594

(22) Filed: Jul. 23, 2001

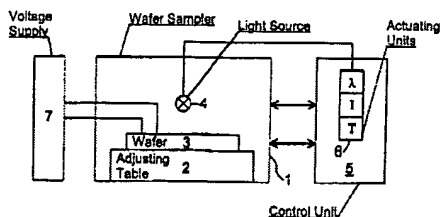
(30) Foreign Application Priority Data

Jul. 23, 2000 (DE) 100 36 177.3

Publication Classification

(51) Int. Cl. G01R 31/26

An apparatus for testing wafer-level semiconductor devices, in particular memory chips in which a tunable light source radiates energy onto the semiconductor devices. The tunable light source is constructed to adjust the radiated light to a specific wavelength and to a specific intensity and to project the light for a predetermined time. When the semiconductor devices are irradiated with the light, electrons in defective ones of the semiconductor devices, in which a distance between a valence band and a conduction band has a lower value as compared with that of defective ones of the semiconductor devices, can be transferred into the conduction band from the valence band. These defective or "poor" semiconductor devices can thus be separated out.



Details Text Image HTML Full